

Memorandum of Points and Authorities

Exhibit 5 – Report and CV of Dr. Chan

Defendants' Daubert Motion/Motion in Limine to Exclude Testimony  
Pertaining to Positional Asphyxia Resulting From Compression

*Theodore C. Chan, MD, FACEP*  
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December 1, 2009

Christina Retts  
Jones, Skelton & Hochuli, PLC  
2901 North Central Avenue, suite 800  
Phoenix, AZ 85012

RE: Watson v. City of Phoenix

At your request, below is a written summary of my opinions regarding the above named case. My opinions are based on my training, experience and research as a Professor of Clinical Medicine in the Department of Emergency Medicine at the University of California San Diego Medical Center. I have conducted numerous human research studies on the topic of restraint physiology that have been published in peer-reviewed medical journals and presented at national medical meetings and scientific assemblies. I am also a practicing emergency physician, board-certified in the specialty of emergency medicine, and a Fellow of the American College of Emergency Physicians and American Academy of Emergency Medicine.

In formulating my opinions regarding the specific issues of this case, I have relied upon my own scientific and clinical research on restraint physiology, a review of the current medical and scientific literature relevant to this case, and the specific materials you forwarded me regarding the above named case, including the complete City of Phoenix incident police report, in-custody death investigation report, medical records of Doris Watson including those from J.C. Lincoln Hospital, Phoenix Fire Department EMS report, Maricopa County Medical Examiner's autopsy report, and interview and deposition transcripts of Chara Watson-Nance, Officers Buckner, Garcia and Gray, and Kellie Bowers. Except as noted, my opinions and testimony will be to a reasonable degree of medical certainty. If additional pertinent information is revealed and provided to me subsequent to this letter, my opinions may change.

In brief, Doris Watson was a 70 year-old woman with history of coronary artery disease, hypertension, and psychiatric bipolar disorder, who was involved in an altercation and struggle with law enforcement personnel on March 13, 2007. Ms. Watson was reported to be acting in a bizarre manner, refusing to cooperate with law enforcement personnel called to the incident. She became involved in a struggle with Officers Gray, Bucker, and Garcia and was eventually taken to the ground and restrained in the prone position. Ms. Watson was handcuffed with her wrists behind her back and her ankles were restrained. After she was restrained, Ms. Watson became unresponsive and responders noted she was apneic, pulseless and in cardiopulmonary arrest. Resuscitative measures including

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cardiopulmonary resuscitation, advanced airway management, and cardiac medications were administered by EMS personnel in the field. Ms. Watson was transported to J.C. Lincoln Hospital Emergency Department where resuscitative measures were continued, but ultimately proved unsuccessful and she was pronounced dead at that time.

On autopsy, the coroner found evidence of significant atherosclerotic cardiovascular disease, cardiomegaly with mild left ventricular hypertrophy, and evidence of blunt force trauma including mild abrasions on the forehead and face, two contusions on the back, as well as abrasions and contusions over the extremities. The pathologic diagnoses by the coroner included: "acute psychotic episode with confusion, agitation, aggressive behavior, physical exertion and confrontation with others, followed by a brief restraint and sudden cardiac arrest". The Medical Examiner attributed the cause of death to coronary artery disease with "acute psychotic episode with physical exertion and confrontation with others".

It has been alleged that positional or restraint asphyxia may have played a role in Ms. Watson's death. It is my opinion that positional or restraint asphyxia did not cause respiratory compromise that would have resulted in asphyxiation and death in this case. By way of background, positional or restraint asphyxia is a term that was initially used to describe the deaths of individuals who were found in body positions that compromised respiratory function. Most commonly, these cases involved individuals in whom their position led to obstruction of the upper airway (such as from extreme head-neck hyperflexion) and who were alcohol intoxicated (to the point of being unable to remove themselves from the lethal position).<sup>1</sup> In the late 1980s, this term was applied as a cause of death in reports of sudden deaths that occurred to persons who were being restrained while in custody. Proponents of this theory argued that individuals placed in the hobble position (hogtie or prone restraint position in which individuals were placed prone on their stomach with wrists handcuffed behind the back and ankles secured to the handcuffs) were unable to breathe because the position caused chest wall and abdominal restriction that prevented adequate expansion of the lungs and subsequently led to asphyxiation. However, many argued that other factors played a greater role in causing these deaths reported in the medical literature.

There is little scientific evidence to support the notion that prone restraint results in life-threatening respiratory compromise or asphyxiation. The theory of positional asphyxia as applied to custody restraint was largely based on the work of Reay et al, who studied 10 healthy subjects after exercise and found delayed recovery of blood oxygen levels and heart rate in the hobble position.<sup>2</sup> We conducted a more comprehensive study investigating the effects of body position on respiratory function after exertion that was published in the *Annals of Emergency Medicine* and reviewed in another article published in the *American Journal of Forensic Medicine and Pathology*.<sup>3,4</sup> In our study involving 15 human volunteers, we studied respiratory function in the sitting, supine (laying on the back), prone (laying on the stomach), and hobble position. While we found a slight progressive decrease in pulmonary function (the amount of air movement in the lungs), these changes were within normal range. Accordingly, we found no

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evidence of decreased blood oxygen levels or increased carbon dioxide levels (to suggest inadequate ventilation) in the hobble position. These findings have been confirmed by other independent investigators who found no significant decrease in blood oxygen levels in individuals placed in similar restraint positions.<sup>5,6</sup>

As a result of this evidence, Dr. Reay, one of the chief proponents of the positional asphyxia theory with custody restraint, has written that "the hog-tied prone position should be viewed as not producing significant physiologic respiratory compromise, and it does not produce any serious or life-threatening respiratory effects".<sup>7</sup> In Ms. Watson's case, she appeared to be in a less-restrictive prone or semi-prone position at the time of her cardiopulmonary arrest, indicating even less of a risk for so-called positional or restraint asphyxiation. Officers describe Ms. Watson as yelling and screaming during the restraint process, as well as breathing after she was handcuffed in the prone position, indicating that her respiratory status was not compromised to the point of asphyxiation at that time. In addition, carbon dioxide measurements in the field indicate that Ms. Watson was not suffering severe, life-threatening hypoventilation that would indicate risk for positional or restraint asphyxia as a cause of her cardiopulmonary arrest.

During the time of the struggle when Ms. Watson was being restrained, weight force may have been applied to her body by Officers to hold her down. Some have now argued that additional weight force, as might have occurred in this case during the restraint process, causes greater respiratory compromise to an individual that can lead to asphyxiation. However, the time during which law enforcement were struggling with Ms. Watson in the prone position was short and unlikely long enough to lead to death by asphyxiation. In addition, there is little evidence or findings to suggest that Ms. Watson suffered any marked increased in intrathoracic cavity pressure as a result of weight force (unlike victims of traumatic asphyxiation). Furthermore, we have conducted two studies investigating the effect of weight force while restrained on human volunteers. In our initial study, we found no evidence of hypoxia or hypoventilation in human subjects on whom moderate amounts of weight were placed on their back in the prone restraint position.<sup>8</sup> In our subsequent study, we placed up to 225 pounds of weight force on human subjects in the prone restraint position and found no life-threatening abnormalities in ventilation.<sup>9</sup> These results are consistent with other investigators who have conducted similar weight force studies on the prone restraint position and found no evidence of hypoxia to indicate risk for asphyxiation.<sup>10</sup>

In conclusion, it is my opinion that positional or restraint asphyxia did not cause respiratory compromise that led to Ms. Watson's death. In accordance with the Rules of Civil Procedure, my compensation for services rendered in association with this case are \$450/hour, including travel time and expenses. Prior cases in which I have provided testimony over the past four years are: *Jardine v. City of Tempe*, Tempe, Arizona, 2005; *Kapanak v. City of Phoenix*, Phoenix, Arizona, August 2005; *Varela v. Cuny*, Mesa, Arizona, September 2005; *Loomis v. City of Puyallup*, Washington, 2005; *Nunez v. County of San Joaquin*, 2006; *Chavez v. City of Los Angeles*, 2006, 2008; *Singleton v. Charleston EMS*, South Carolina, 2006; *Alvarado v. City of Los Angeles*, 2006; *Pullman*

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v. Arnold, Washington State, 2006, 2007; Wiseman v. Connecticut, 2007; Rodriguez v. Laredo Medical Center, 2007; Gates v. North Metro Fire Rescue, 2007; Medina v. City of Los Angeles, 2008; McCullaugh v. Summit County, et al., Ohio, 2009; Marquez v. City of Phoenix, Arizona, 2009.

Should you have any further questions, please do not hesitate to contact me at any time.

Sincerely,



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Professor of Clinical Medicine  
Medical Director  
Department of Emergency Medicine  
University of California San Diego Medical Center

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## References

- <sup>1</sup> Bell MD, Rao VJ, Wetli CV, et al: Positional asphyxiation in adults: a series of 30 cases from Dade and Broward County Florida medical examiner offices from 1982 to 1990. *American Journal of Forensic Medicine and Pathology* 1992; 13: 101.
- <sup>2</sup> Reay DT, Howard JD, Fligner CL, Ward RJ: Effects of positional restraint on oxygen saturation and heart rate following exercise. *American Journal of Forensic Medicine and Pathology* 1989; 9: 16.
- <sup>3</sup> Chan TC, Vilke GM, Neuman T, Clausen JL: Restraint position and positional asphyxia. *Annals of Emergency Medicine* 1997; 30: 578.
- <sup>4</sup> Chan TC, Vilke GM, Neuman T: Reexamination of custody restraint position and positional asphyxia. *American Journal of Forensic Medicine and Pathology* 1998; 19(3): 201.
- <sup>5</sup> Schmidt P, Snowden T: The effects of positional restraint on heart rate and oxygen saturation. *Journal of Emergency Medicine* 1999; 17(5): 777.
- <sup>6</sup> Parkes J: Sudden death during restraint: a study to measure the effect of restraint positions on the rate of recovery from exercise. *Med. Sci. Law* 2000; 40(1): 39.
- <sup>7</sup> Reay DT: Death in custody. *Clinics in Laboratory Medicine* 1998; 18(1): 1.
- <sup>8</sup> Chan TC, Neuman T, Clausen J, Eisele J, Vilke GM: Weight force during prone restraint and respiratory function. *Am J Forensic Med Pathol* 2004; 25(3):185-189.
- <sup>9</sup> Michalewicz BA, Chan TC, Vilke GM, Levy SS, Neuman TS, Kolkhorst FW: Ventilatory and metabolic demands during aggressive physical restraint in healthy adults. *J Forensic Sci* 2007;52(1):171-175.
- <sup>10</sup> Cary NRB, et al: The effect of simulated restraint in the prone position on cardiorespiratory function following exercise in humans. *J Physiol* 1998;525:30p.

*CURRICULUM VITAE*

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EDUCATION:

Academic: 1983-87	B.A. in History with Highest Distinction in General Scholarship, University of California, Berkeley Berkeley, California
Medical School: 1988-92	M.D., University of California, San Francisco School of Medicine San Francisco, California
Internship: 1992-93	Department of Internal Medicine University of California, San Francisco Medical Center San Francisco, California
Residency: 1993-96	Department of Emergency Medicine University of California, San Diego Medical Center San Diego, California (Chief Resident: 1995-96)

LICENSURE: California Medical License Number G-78148, 1994

BOARD CERTIFICATIONS:

National Board of Medical Examiners, 1993  
Diplomate, American Board of Emergency Medicine, 1997; Recertification 2007

CHAN000006

Curriculum Vitae  
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#### APPOINTMENTS:

7/06 - Present	Associate Director, Department of Emergency Medicine, University of California, San Diego (UCSD) Medical Center
7/05 - Present	Professor of Clinical Medicine, UCSD School of Medicine
1/05 - Present	Medical Director and Clinical Service Chief, Emergency Department, UCSD-Hillcrest Medical Center
1/05 - Present	Medical Director and Clinical Service Chief, Emergency Department, UCSD-Thornton Hospital
4/99 - Present	Director, Custody Services, UCSD Medical Center
12/98 - Present	Medical Director, Metropolitan Medical Strike Team, County of San Diego
7/94 - Present	Base Hospital Physician, UCSD Medical Center

#### PREVIOUS EXPERIENCE:

7/96 - 7/06	Assistant Director, Department of Emergency Medicine, UCSD Medical Center
7/01 - 6/05	Quality Assurance Director, Department of Emergency Medicine, UCSD Medical Center
7/01 - 6/05	Associate Professor of Clinical Medicine, UCSD School of Medicine
7/01 - 12/04	Associate Medical Director, Emergency Department, UCSD-Hillcrest Medical Center and UCSD-Thornton Hospital
7/96 - 6/01	Assistant Clinical Professor of Medicine, UCSD School of Medicine
1994 - 1996	Physician, Department of Emergency Medicine, Kaiser Permanente Medical Center, San Diego, California
1994 - 1996	Medical Consultant, Med America Health Resource, San Diego, California
1/96 - 6/96	Flight Physician, Mercy Air Medical Transport Service, San Diego, California
7/93 - 12/95	Flight Physician, Life Flight Air Medical Transport Service, UCSD Medical Center
1987 - 1988	Fellow, California State Senate, Senate Committee on Insurance, Claims and Corporations, Sacramento, California
1986	Intern, Office of the Assistant Surgeon General, Washington, D.C.



Curriculum Vitae  
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**CERTIFICATIONS:**

Advanced Cardiac Life Support Provider, 1992-96  
Advanced Cardiac Life Support Instructor, 1996  
Pediatric Advanced Life Support (PALS) Provider, 1993  
PALS Course Director for UCSD School of Medicine, 1996  
Advanced Trauma Life Support Provider, 1993  
HAZMAT Level I Training, 1996

**AWARDS:**

1984 Frank Kraft Award Scholarship, University of California, Berkeley  
1986 Gordon Sproul Award Recipient, University of California, Berkeley  
1987 Phi Beta Kappa, University of California, Berkeley  
1987 University Medal Finalist, University of California, Berkeley  
1988 California Senate Resolution of Commendation, Awarded by the Senate Rules Committee, August 22, 1988, Sacramento, California  
1996 Outstanding Resident of the Year, Department of Emergency Medicine, University of California, San Diego Medical Center  
1996 Resident Academic Achievement Award, Emergency Medicine Council of Residency Directors  
1999 "Golden Apple" Teaching Award, UCSD Emergency Medicine Residency Graduating Class of 1999  
2000 Faculty of the Year, UCSD Emergency Medicine Residency Graduating Class of 2000  
2000 Best Research Poster Presentation, California Chapter of the American College of Emergency Physicians (CAL/ACEP) Scientific Assembly, Dana Point, California  
2000 Outstanding Consultant for 1999-2000, presented by the *Annals of Emergency Medicine* Editorial and Consulting Boards, acknowledging dedicated effort to improve the quality of research published in the field of Emergency Medicine, and to the success of the journal  
2001 Best Oral Presentation, CAL/ACEP Scientific Assembly, Santa Clara, California  
2001 Top Consultant for 2000-2001, presented by the *Annals of Emergency Medicine* Editorial and Consulting Boards  
2002 Top Consultant for 2001-2002, presented by the *Annals of Emergency Medicine* Editorial and Consulting Boards

Curriculum Vitae  
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AWARDS (cont.):

- 2003 Top Consultant for 2002-2003, presented by the *Annals of Emergency Medicine* Editorial and Consulting Boards
- 2004 Academy of Clinician Scholars, University of California San Diego
- 2005 Top Peer Reviewer, *Annals of Emergency Medicine*
- 2005 2005 Top Doctors, San Diego County Medical Society
- 2005 Senior Reviewer, *Annals of Emergency Medicine*
- 2006 Senior Reviewer, *Annals of Emergency Medicine*
- 2006 2006 Top Doctors, San Diego County Medical Society
- 2007 Senior Reviewer, *Annals of Emergency Medicine*
- 2007 2007 Top Doctors, San Diego County Medical Society

PROFESSIONAL SOCIETY MEMBERSHIPS:

- American Medical Association, 1990
- California Alumni Association, 1990
- American College of Emergency Physicians, 1992
- Society for Academic Emergency Medicine, 1996
- Fellow, American College of Emergency Physicians, 1999
- Fellow, American Academy of Emergency Medicine, 2005

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CURRENT ACTIVITIES:

Physician Member, Disaster Medical Assistance Team (DMAT), San Diego, CA (CA-4), 1994  
Reviewer, *Journal of Emergency Medicine*, Elsevier Science, Inc., 1994  
Editor, Cardiology Section, *Journal of Emergency Medicine*, Elsevier Science, Inc., 1997  
Point of Care Advisory Committee, UCSD Medical Center, 2000  
Member, Editorial Board, *Emergency Medicine News*, Lippincott Williams & Wilkins, 2001  
Member, Health and Human Services Committee, San Diego Foundation, May 2001  
Member, Editorial Board, *Emergency Medicine Specialty Reports*, publication of American Health Care Consultants, Atlanta, Georgia, 2001  
Chair, San Diego Foundation Disaster Board, 2002  
Peer Reviewer, *Emergency Medicine Reports*, publication of American Health Care Consultants, Atlanta, Georgia, 2002  
Member, Community Acquired Pneumonia Multidisciplinary Team, JCAHO Oryx Core Measurements, UCSD Medical Center, 2002  
Member, Acute Myocardial Infarction Multidisciplinary Team, JCAHO Oryx Core Measurements, UCSD Medical Center, 2002  
UCSD/San Diego Sheriff Security Working Group, 2003  
Member, UCSD campus-wide Committee on Affirmative Action and Diversity, 2003  
Editor, *Clinical Briefs in Emergency Medicine*, publication of American Health Consultants, Atlanta, Georgia, 2003  
Vice Chair, UCSD Committee on Affirmative Action and Diversity, 2005  
UCSD Representative, University Committee on Affirmative Action and Diversity, 2005  
Chair, Communications Subcommittee, Inpatient Task Force, UCSD Medical Center, 2005  
Member, UCSD Faculty Rights and Welfare Committee, 2006  
Chair, UCSD University Committee on Affirmative Action and Diversity, 2006  
Member, UC University Committee on Affirmative Action and Diversity, 2006  
Member, UCSD Academic Senate Council, 2006  
Member, UCSD Senate-Administration Council, 2006  
Member, US National Institute of Justice Less Lethal Technical Working Group, 2006  
Member, Governor's Interagency Coordinating Council for the Prevention of Alcohol and Other Drug Problems - California Screening, Brief Intervention, and Referral to Treatment (CASBIRT) Subcommittee, 2007  
Member, UCSD Inpatient Redesign Task Force, UCSD Medical Center, 2007

Curriculum Vitae  
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**PREVIOUS ACTIVITIES:**

Seminar Coordinator, Health Policy Seminars, Interdepartmental Studies 130, University of California, Berkeley, 1985-87

Research Intern, International Debt Crisis Project, Institute of International Studies, Geneva, Switzerland, 1989

Student Representative, Legislation Committee, California Medical Association, 1989-90

Instructor, Science and Health Education Partnership Program, University of California, San Francisco School of Medicine, San Francisco Unified Public School District, 1989-91

Clinical Scholars Training, Peking Union Medical College, Beijing, China, 1992

Representative, Clinical Practice Guidelines Committee, Department of Emergency Medicine, UCSD Medical Center, 1994-96

Representative, Quality Assurance Committee, Department of Emergency Medicine, UCSD Medical Center, 1994-96

Representative, California Emergency Medicine Residents Association, 1995-96

Associate Editor, *Journal of Emergency Medicine*, Pergamon Press, 1996

Strike Team Leader, Disaster Medical Assistance Team, 1996  
Biological and Chemical Hazardous Materials Medical Support  
FBI/SWAT Team Medical Support  
1996 Atlanta Olympic Games

---

Medical Support Physician, Super Bowl XXXII, San Diego, California, January 25, 1998

Member, Managed Care Task Force, Society for Academic Emergency Medicine, 1997-98

Member, Steering Committee, CHIPS (Community Health Improvement Partners), Health Care Association of San Diego and Imperial Counties, 1997-2002

Project Co-coordinator, Influenza immunization program for New Americans in the Mid-City and City Heights communities, in conjunction with San Diego City Fire and Life Safety Services and Project Concern International, Fall 1998

Project Co-coordinator, 911 Educational Outreach Program for New Americans in the Mid-City and City Heights communities, in conjunction with San Diego City Fire and Life Safety Services and Project Concern International, Fall 1998

Member, Pharmacy and Therapeutics Committee, UCSD Medical Center, 1998-99

Reviewer, *American Journal of Managed Care*, American Publishing Company, 1998-2001

Faculty Search Committee, Department of Emergency Medicine, UCSD Medical Center, 1999, 2001

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PREVIOUS ACTIVITIES, continued:

Faculty, Twenty-first Annual Mammoth Mountain Emergency Medicine Conference, Mammoth Lakes, California, March 2001

Faculty, Third Annual ACEP Emergency Medicine Connection, San Diego, California, March 2001

Associate Editor, *Emergency Medicine Alert*, publication of American Health Care Consultants, Atlanta, Georgia, 2000-2005

Director, Emergency Department Clinical Resource Management, UCSD Medical Center, 1996

Co-Director, Pediatric Advanced Life Support Course, UCSD School of Medicine, 1997

Member, Research Subcommittee, Prehospital Audit Committee, San Diego County, 1997

Member, CPR Subcommittee, Prehospital Audit Committee, San Diego County, 1997

Member, Outpatient Clinical Guidelines Committee, UCSD Medical Center, 1998

Member, San Diego City EMS Oversight Committee, 1998

Member, San Diego City EMS Prehospital Cardiac Care Subcommittee, 1998

Medical Director, San Diego County Metropolitan Medical Strike Team, 1998

Reviewer, *Annals of Emergency Medicine*, Mosby, 1999

Director, Continuing Quality Assurance Programs, UCSD Emergency Department, 1999

Emergency Department Quality Improvement Representative, Patient Care Review Committee, UCSD Medical Center, 2000

Member, Bioterrorism Communication Collaborative, Department of Health and Human Services Agency, County of San Diego, 2001

Member, School of Medicine Graduate Medical Education Committee, 2001  
Institute of Medicine, Committee on Research Priorities in Emergency Preparedness and Response for Public Health Systems, 2007.

Member, UCSD Department of Radiology Faculty Search Committee, 2007-2008

Member, CDC coordinating Office for Terrorism Preparedness and Emergency Response (CDC COPTER), Special Emphasis Panel for P01 RFA TP-08-001 (Preparedness and Emergency Response Research Centers: A Public Health Systems Approach, July 2008

Curriculum Vitae  
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**RESEARCH GRANT FUNDING:**

1. Co-Principal Investigator with Dr. Tom Neuman, for study entitled, "Restraint Position and Positional Asphyxia." Study funded by the County of San Diego, Grant #94-1974R, 1995. Amount: \$33,900.
2. Principal Recipient, unrestricted grant from Cook, Incorporated for Research and Education on the Melcker Cricothyrotomy Kit, 1997-98. Amount: \$10,000.
3. Co-Principal Investigator for study entitled, "Comparison of Respiratory Function in the Prone Maximal Restraint With and Without Additional Weight Force on the Back." American Academy of Forensic Sciences, with Doctors John Eisele, Jack Clausen, Tom Neuman and Gary Vilke, 1999-2000. Amount: \$3,000.
4. Principal Investigator for study entitled, "The Impact of Oleoresin Capsicum Spray on Respiratory Function in Human Subjects in the Sitting and Prone Maximal Restraint Positions." Study funded by the National Institute of Justice, U.S. Department of Justice, 1998-99. UCSD No. 98-7107; USDOJ Federal Award #98-IJ-CX-0079. 2001-02. Amount: \$128,176.
5. Co-Principal Investigator for study entitled, "Improving Access, Awareness and Use of the California Regional Poison Center in Two Ethnically Diverse Communities in San Diego." UCSD Civic Collaborative, with Dr. Richard F. Clark, 2001-02. Amount: \$5,000.
6. Co-Principal Investigator for study to design and assess the impact of a community outreach program to improve awareness and use of the California Poison Control System by Latino and other underserved communities in San Diego. Part of a Community Outreach Partnership Centers Program New Directions Grant from the federal Office of Housing and Urban Development, with Dr. Richard Clark and Dr. Vivian Reznik (UCSD Pediatrics Department), 2002-04. Amount: \$4,000.
7. Principal Recipient, unrestricted grant from Cook, Incorporated for Research and Education on the Cuffed Melcker Cricothyrotomy Kit, 2003. Amount: \$12,000.
8. Principal Investigator & Project Director, for project on Emergency Department Crowding & Safety Net Assessment, funded by the Urgent Matters Program, Robert Wood Johnson Foundation, grant # 048545. Amount: \$150,000 total (\$100,000 technical assistance; \$25,000 UCSD project direction, \$25,000 safety net assessment).
9. Co-Investigator and now co-Principal Investigator (with Drs. Les Lenert and Prof. William Griswold) for study entitled Wireless Internet Information System for Medical Response to Disasters (WIISARD), funded by the National Library of Medicine. 2003-2008. Amount: \$3,200,000.
10. Co-Principal Investigator, with Dr. Daniel Davis, for study entitled Emergency Department National Alcohol Screening Day, Alcohol Education Project, funded by NIH, grant #1 R03 AA015120-01. 2005. Amount: \$25,000.

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RESEARCH GRANT FUNDING (cont.):

11. Co-Principal Investigator, with Dr. Gary Vilke, for study entitled, "The effect of Taser on Cardiac, Respiratory and Metabolic Physiology in Human Subjects." Study funded by the National Institute of Justice, U.S. Department of Justice, 2005-7. UCSD No. 2006-0846; USDOJ Federal Award #98-IJ-CX-0079. Amount: \$213,941.49
12. Principal Investigator, for study entitled, "Improving Medical Home and Primary Care Access to the Community Clinics Through the ED (IMPACT-ED)." Study funded by the Alliance Healthcare Foundation, 2006-7. Alliance Grant #06-3114. Amount: \$25,000.
13. Principal Investigator, for study entitled, "Evaluation of the Ventilatory and Respiratory Effects of a Restraint Chair on Human Subjects." Study funded by the Institute for the Prevention of In-Custody Deaths, Inc., 1/1/07 to 12/31/07. Amount: \$11,658.00
14. Co-Principal Investigator, with Jean Marshall, RN, for study entitled, "Impact of the State Mandated Nurse-Patient Ratio on ED Crowding, Flow and Patient Care". EMF/ENAF (Emergency Medicine Foundation / Emergency Nurses Association Foundation) Directed Team Grant, ED Overcrowding Research Award, 2007-08. Amount: \$50,000.
15. Co-Principal Investigator, with Dr. Joshua Lee, for project entitled, "San Diego Safety Net Health Information Exchange." Project funded by Pacificare/United Healthcare, 2008-2011. Amount: \$715,000.

Curriculum Vitae  
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PUBLICATIONS:

Articles

1. Chan TC, Williams SR, Clark RF: Formic acid burns resulting in systemic toxicity. Ann Emerg Med 1995;26(3):383-386.
2. Chan T, Vilke GM, Williams S: Bidirectional tachycardia associated with digoxin toxicity. J Emerg Med 1995;13(1):89.
3. Bauman BH, Vilke G, Chan T: Dexamethasone use in croup. West J Med 1996;164(1):66.
4. Chan TC, Krishel SJ, Bramwell KJ, Clark RF: Survey of illegal immigrants seen in an emergency department. West J Med 1996;164(3):212-216.
5. Chan T, Dunford J: Severe tophaceous gout. J Emerg Med 1996;14(2):223.
6. Chan TC, Hayden S: Early retropharyngeal abscess formation after treatment of scarlet fever. J Emerg Med 1996;14(3):377.
7. Chan TC: Supracondylar fracture. J Emerg Med 1997;15(1):99.
8. Chan TC, Evans SD, Clark RF: Drug-induced hyperthermia. Crit Care Clinics North Am 1997;13(4):785-808.
9. Chan TC, Hayden SR, Schwartz B, Fletcher T, Clark RF: Patients' satisfaction when denied authorization for emergency department care by their managed care plan. J Emerg Med 1997;15(5):611-616.
10. Chan TC, Vilke GM, Neuman T, Clausen JL: Restraint position and positional asphyxia. Ann Emerg Med 1997;30(5):578-586.
11. Moss ST, Chan TC, Buchanan J, Dunford JV, Vilke GM: Outcome study of prehospital patients signed out against medical advice by field paramedics. Ann Emerg Med 1998;31(2):247-250.
12. Chan TC, Vilke GM, Neuman T: Reexamination of custody restraint position and positional asphyxia. Am J Forensic Med Pathol 1998;19(3):201-205.
13. Howard JD, Reay DT [32(1):116-117] / Chan TC, Vilke GM, Neuman T, Clausen J: Positional asphyxia (Reply to letter to the editor). Ann Emerg Med 1998;32(1):117-118.
14. Vilke GM, Mahoney G, Chan TC: Postpartum coronary artery dissection. Ann Emerg Med 1998;32(2):260-262.
15. Ma G, Chan TC: Atlantoaxial dislocation. J Emerg Med 1999;17(1):113-114.



Curriculum Vitae  
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PUBLICATIONS, continued:

Articles

16. Friedman L, Vilke GM, Chan TC, Hayden SR, Guss DA, Krishel SJ, Rosen P: Emergency department airway management before and after an emergency medicine residency. *J Emerg Med* 1999;17(3):427-431.
17. Brady WJ, Chan TC: Electrocardiographic manifestations: Benign early repolarization. *J Emerg Med* 1999;17(3):473-478.
18. Cardall TY, Chan TC, Brady WJ, Perry JC, Vilke GM, Rosen P: Permanent cardiac pacemakers: Issues relevant to the emergency physician, Part I. *J Emerg Med* 1999;17(3):479-489.
19. Cardall TY, Brady WJ, Chan TC, Perry JC, Vilke GM, Rosen P: Permanent cardiac pacemakers: Issues relevant to the emergency physician, Part II. *J Emerg Med* 1999;17(4):697-709.
20. Vilke GM, Buchanan J, Dunford JV, Chan TC: Are heroin overdose deaths related to patient release after prehospital treatment with naloxone? *Prehosp Emerg Care* 1999;3(3):183-186.
21. Roppolo LP, Vilke GM, Chan TC, Krishel S, Hayden SR, Rosen P: Nasotracheal intubation in the emergency department, revisited. *J Emerg Med* 1999;17(5):791-799.
22. Chan TC, Brady WJ, Pollack M: Electrocardiographic manifestations: Acute myopericarditis. *J Emerg Med* 1999;17(5):865-872.
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24. Chan TC, Vilke GM, Bramwell KJ, Davis DP, Hamilton RS, Rosen P: Comparison of wire-guided cricothyrotomy versus standard surgical cricothyrotomy technique. *J Emerg Med* 1999;17(6):957-962.
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16. Moats T, Chan TC, Ochs M, Buchanan J, Vilke GM: Successful out-of-hospital airway management by emergency medicine technicians-Is using the Combitube. SAEM Annual Meeting, Chicago, Illinois; May 1998.
17. Hamilton RS, Davis DP, Chan TC, Vilke GM, Hayden SR: The effect of blade type and cervical spinal immobilization on laryngoscopy in a cadaver model of intubation. SAEM Annual Meeting, Chicago, Illinois; May 1998.
18. Vilke GM, Chan TC, Neuman T, Clausen JL: The effect of body positioning on pulmonary function. SAEM Annual Meeting, Chicago, Illinois; May 1998.
19. Friedman L, Vilke GM, Chan TC, Hayden SR, Krishel SJ, Rosen P: Emergency department airway management before and after the start of an emergency medicine residency training program. SAEM Annual Meeting, Chicago, Illinois; May 1998.
20. Davis DP, Bramwell KJ, Hamilton RS, Chan TC, Vilke GM: Cricothyrotomy speed and safety: A comparison between standard open technique and rapid four-step technique using a novel device. SAEM Annual Meeting, Chicago, Illinois; May 1998.
21. Davis DP, Fisher RP, Chan TC, Dunford JV, Vilke GM: Rapid sequence induction for out-of-hospital intubations: A multimedia course designed for paramedics. SAEM Annual Meeting, Chicago, Illinois; May 1998.
22. Chan TC, Buchanan J, Anderson M, Vilke GM: Patient ethnicity and age in prehospital emergency ambulance use and acuity rates. CAL/ACEP Scientific Assembly, Monterey, California; June 1998.
23. Vilke GM, Chan TC, Neuman TS, Clausen JL: The effect of body position on pulmonary function. CAL/ACEP Scientific Assembly, Monterey, California; June 1998.
24. Vilke GM, Dunford JV, Buchanan J, Chan TC: Are opiate overdose deaths related to patient release after naloxone? CAL/ACEP Scientific Assembly, Monterey, California; June 1998.
25. Gerling MC, Hamilton RS, Davis DP, Morris GF, Chan TC, Vilke GM, Garfin SR, Hayden SR: Movement across an unstable cervical spine injury in a cadaver model of intubation. CAL/ACEP Scientific Assembly, Monterey, California; June 1998.

Curriculum Vitae  
Theodore C. Chan, M.D., FACEP

POSTER PRESENTATIONS, continued:

26. Marino A, Vilke GM, Buchanan J, Chan TC: Comparison of prehospital IV and rectal diazepam for the treatment of pediatric seizures. CAL/ACEP Scientific Assembly, Monterey, California; June 1998.
27. Davis DP, Bramwell K, Hamilton RS, Chan TC, Vilke GM: Cricothyrotomy speed and safety: A comparison between standard open technique and rapid four-step technique using a novel device. CAL/ACEP Scientific Assembly, Monterey, California; June 1998.
28. Davis DP, Bramwell K, Hamilton RS, Chan TC, Vilke GM: Effect of blade type and cervical spine immobilization on laryngoscopy in a cadaver model of intubation. CAL/ACEP Scientific Assembly, Monterey, California; June 1998.
29. Marino A, Chan TC, Buchanan J, Vilke GM: Precision of prehospital diazepam dosing for children in status epilepticus. National Association of Emergency Medical Service Physicians (NAEMSP) Mid-Year Meeting, Lake Tahoe, Nevada; July 1998.
30. Marino A, Vilke GM, Buchanan J, Chan TC: Comparison of prehospital IV and rectal diazepam for the treatment of pediatric seizures. NAEMSP Mid-Year Meeting, Lake Tahoe, Nevada; July 1998.
31. Vilke GM, Dunford JV, Buchanan J, Chan TC: Are opiate overdose deaths related to patient release after prehospital naloxone? NAEMSP Mid-Year Meeting, Lake Tahoe, Nevada; July 1998.
32. Chan TC, Vilke GM, Anderson ME, Ray LU: Prehospital data on safety restraint use in children and adolescents involved in motor vehicle crashes. California Center for Childhood Injury Prevention Conference, Sacramento, California; September 1998.
33. Sloane C, Chan TC, Vilke GM, Hayden SR, Krishel SJ, Rosen P: Rapid sequence induction intubation of trauma patients in the prehospital versus hospital setting. ACEP Research Forum, San Diego, California; October 1998.
34. Marino A, Vilke GM, Buchanan J, Chan TC: Comparison of prehospital IV and rectal diazepam for the treatment of pediatric seizures. ACEP Research Forum, San Diego, California; October 1998.
35. Marino A, Chan TC, Buchanan J, Vilke GM: Precision of prehospital diazepam dosing for children in status epilepticus. ACEP Research Forum, San Diego, California; October 1998.
36. Davis DP, Bramwell K, Hamilton RS, Chan TC, Vilke GM: The fresh-frozen cadaver free-larynx model for cricothyrotomy training. ACEP Research Forum, San Diego, California; October 1998.

Curriculum Vitae  
Theodore C. Chan, M.D., FACEP

POSTER PRESENTATIONS, continued:

37. Chew GS, Chan TC, Bramwell K, Davis DP, Vilke GM: Does the syringe esophageal detector device accurately detect an esophageal intubation following gastric distention from air insufflation? ACEP Research Forum, San Diego, California; October 1998.
38. Chan TC, Bramwell K, Hamilton RS, Davis DP, Vilke GM: Comparison of Melcker cricothyrotomy versus standard technique in human cadaver model. ACEP Research Forum, San Diego, California; October 1998.
39. Vilke GM, Chan TC: Effect of a physician speaking directly to prehospital patients who want to sign out against medical advice. NAEMSP Annual Meeting, Marcos Island, Florida; January 1999.
40. Marino A, Vilke GM, Chan TC: Urban paramedics experience, comfort, and accuracy in the estimation of pediatric weights. NAEMSP Annual Meeting, Marcos Island, Florida; January 1999.
41. Ma G, Schmitt J, Chan TC, Vilke GM, Chan D: Using ultrasound to visualize and confirm endotracheal intubation. SAEM Western Regional Research Forum, Redondo Beach, California; March 1999.
42. Chan TC, Davis DP, Bramwell K, Hamilton RS, Vilke GM: Comparison of wire-guided percutaneous cricothyrotomy versus standard cricothyrotomy. SAEM Annual Meeting, Boston, Massachusetts; May 1999.
43. Hamilton RS, Davis DP, Bramwell K, Nordt S, Vilke GM, Chan TC: Lidocaine administration through an esophageally placed Combitube in a canine model. SAEM Annual Meeting, Boston, Massachusetts; May 1999.
44. Vilke GM, Chan TC, Marino A, Iskander J: Knowledge of prescribed medications by ED patients. SAEM Annual Meeting, Boston, Massachusetts; May 1999.
45. Chew GS, Chan TC, Bramwell K, Davis DP, Vilke GM: Does gastric distention from air insufflation affect the accuracy of the syringe esophageal detector device in detecting esophageal intubation? SAEM Annual Meeting, Boston, Massachusetts; May 1999.
46. Ma G, Schmitt J, Chan TC, Vilke GM, Chan D: Using ultrasound to visualize and confirm endotracheal intubation. SAEM Annual Meeting, Boston, Massachusetts; May 1999.
47. Vilke GM, Marino A, Iskander J, Chan TC: Survey of paramedics for latex allergy risk factors. SAEM Western Regional Research Forum, Portland, Oregon; April 2000.
48. Vilke GM, Chan TC, Calkins T, Clark RF: Review of prehospital sodium bicarbonate use for cyclic antidepressant overdose. SAEM Western Regional Research Forum, Portland, Oregon; April 2000.

Curriculum Vitae  
Theodore C. Chan, M.D., FACEP

POSTER PRESENTATIONS, continued:

49. Chan TC, Vilke GM, Choi S, Krishel SJ, Dunford JV: Survey of emergency department patients who accessed 911. SAEM Western Regional Research Forum, Portland, Oregon; April 2000.
50. Schmitt J, Ma G, Vilke GM, Chan TC: Suprasternal versus cricothyroid placement in US guided ET placement. SAEM Annual Meeting, San Francisco, California; May 2000.
51. Schmitt J, Ma G, Vilke GM, Chan TC: Use of air absorbing ultrasound contrast in US ET placement. SAEM Annual Meeting, San Francisco, California; May 2000.
52. Wold R, Davis D, Chan TC, Vilke GM: Clinical decision guideline to identify patients with epidural abscess. SAEM Annual Meeting, San Francisco, California; May 2000.
53. Chan TC, Vilke GM, Neuman TS, Clark RF, Clausen JL: The effect of oleoresin capsicum spray inhalation on pulmonary and respiratory function. SAEM Annual Meeting, San Francisco, California; May 2000.
54. Vilke GM, Marino A, Iskander J, Chan TC: Survey of paramedics for latex allergy risk factors. SAEM Annual Meeting, San Francisco, California; May 2000.
55. Vilke GM, Chan TC, Choi S, Krishel SJ, Dunford JV: Survey of emergency department patients who accessed 911. CAL/ACEP Scientific Assembly, Dana Point, California; June 2000.
56. Chan TC, Vilke GM, Neuman TS, Clark RF, Clausen JL: The effect of oleoresin capsicum spray inhalation on pulmonary and respiratory function. CAL/ACEP Scientific Assembly, Dana Point, California; June 2000. (Won Award for Best Research Poster)
57. Vilke GM, Chan TC, Seltzer A, Fisher R, Dunford JV: Outcome of out-of-hospital refusal of paramedic transport by parents of pediatric patients. State of California EMS Authority Annual EMS for Children Conference, San Diego, California; November 2000.
58. Vilke GM, Chan TC, Marino A: Urban paramedics' experience, comfort and accuracy in the estimation of pediatric weights. State of California EMS Authority Annual EMS for Children Conference, San Diego, California; November 2000.
59. Chan TC, Dunford JV, Vilke GM: Impact of a community multidisciplinary homeless outreach team. SAEM Western Regional Research Forum, Irvine, California; March 2001.
60. Vilke GM, Chan TC: Prehospital EMT latex allergy risk survey. SAEM Western Regional Research Forum, Irvine, California; March 2001.
61. Vilke GM, Seltzer AG, Fisher R, Dunford JV, Chan TC: Outcome study of minors after initial parental refusal of EMS transport. SAEM Western Regional Research Forum, Irvine, California; March 2001.

Curriculum Vitae  
Theodore C. Chan, M.D., FACEP

POSTER PRESENTATIONS, continued:

62. Chan TC, Vilke GM, Clark RF, Clausen J, Neuman T: Does oleoresin capsicum "pepper spray" exposure impact cardiovascular function in human subjects? SAEM Annual Meeting, Atlanta, Georgia; May 2001.
63. Vilke GM, Seltzer AG, Fisher R, Dunford, JV, Chan TC: Outcome study of minors after initial parental refusal of EMS transport. CAL/ACEP Scientific Assembly, Santa Clara, California; June 2001.
64. Chan TC, Dunford J, Vilke GM, Hix A, Schnell S, Liening J, Edgar J: Effect of a multi-disciplinary serial inebriate program on emergency department visits by chronic alcoholics to two urban area hospitals. ACEP Research Forum, Chicago, Illinois; October 2001.
65. Vilke GM, Sardar W, Fisher R, Dunford JV, Chan TC: Follow-up of elderly patients who refuse transport after accessing 9-1-1. NAEMSP Annual Meeting, Tucson, Arizona; January 2002.
66. Vilke GM, Steen PJ, Smith AM, Chan TC: Out-of-hospital pediatric intubation by paramedics: The San Diego experience. NAEMSP Annual Meeting, Tucson, Arizona; January 2002.
67. Chan TC, Dunford JV, Smith S, Sparrow W, Vilke GM: Impact of an on-call physician on 9-1-1 ambulance transports from a county jail. NAEMSP Annual Meeting, Tucson, Arizona; January 2002.
68. Jenson P, Chan TC, Vilke GM, Leining J, Schenell R, Chester R, Berthelet J, Marcotte A, Simmons C, Kelly D, Dunford J: Effect of a serial inebriate program on hospital and ambulance use by chronic alcoholics. SAEM Western Regional Research Forum, San Diego, California; April 2002.
69. Jin A, Vilke G, Chan T, Davis D: Prospective randomized study of viscous lidocaine vs Hurricaine in a GI cocktail for dyspepsia. SAEM Western Regional Research Forum, San Diego, California; April 2002.
70. Austin T, Vilke GM, Nyheim E, Kelly D, Chan TC: Does the addition of parenteral opiate pre-medication increase risk of complications when combined with methohexital for procedural moderate sedation in the ED? SAEM Western Regional Research Forum, San Diego, California; April 2002.
71. Jenson P, Chan TC, Vilke GM, Leining J, Schenell R, Chester R, Berthelet J, Marcotte A, Simmons C, Kelly D, Dunford J: Effect of a serial inebriate program on hospital and ambulance use by chronic alcoholics. SAEM Annual Meeting, St. Louis, Missouri; May 2002.
72. Jin A, Vilke G, Chan T, Davis D: Prospective randomized study of viscous lidocaine vs Hurricaine in a GI cocktail for dyspepsia. SAEM Annual Meeting, St. Louis, Missouri; May 2002.

Curriculum Vitae  
Theodore C. Chan, M.D., FACEP

POSTER PRESENTATIONS, continued:

73. Austin T, Vilke GM, Nyheim E, Kelly D, Chan TC: Does the addition of parenteral opiate pre-medication increase risk of complications when combined with methohexital for procedural moderate sedation in the ED? SAEM Annual Meeting, St. Louis, Missouri; May 2002.
74. Chan TC, Kelso D, Dunford JV, Vilke GM: Can trained health educators provide screening, brief intervention and referral services in an academic teaching hospital emergency department? SAEM Western Regional Meeting, Scottsdale, Arizona; April 2003.
75. Vilke GM, Smith AM, Upledger-Ray L, Steen PJ, Murrin PA, Chan TC: Airway obstruction in paramedic responses for children less than five years. SAEM Western Regional Meeting, Scottsdale, Arizona; April 2003.
76. Chan TC, Vilke GM, Upledger-Ray L, Smith AM, Stepanski BM, Murrin PA: Helmet use and injuries with scooters, skateboards, rollerblades and skates in children: how do they compare with bicycles? SAEM Western Regional Meeting, Scottsdale, Arizona; April 2003.
77. Vilke GM, Lev R, Castillo EM, Murrin PA, Chan TC: Prospective Countywide Trial to Decrease Ambulance Diversion Hours. SAEM Annual Meeting, Boston, Massachusetts, May 2003.
78. Tran A, Davis DP, Wold RM, Patel R, Chan TC, Vilke GM: The Use of Risk Factor Assessment to Screen for Spinal Epidural Abscess in Emergency Department Patients with Spine Pain. SAEM Annual Meeting, Boston, Massachusetts, May 2003.
79. Chan TC, Kelso D, Dunford JV, Vilke GM: Can Trained Health Educators Provide Screening, Brief Intervention and Referral Services in an Academic Teaching Hospital Emergency Department? SAEM Annual Meeting, Boston, Massachusetts, May 2003.
80. Vilke GM, Lev R, Castillo EM, Metz MA, Murrin PA, Chan TC. San Diego County improved patient destination trial to decrease emergency department diversion hours and diverted patients. ACEP Annual Meeting, Boston, Massachusetts, October 2003.
81. Chan TC, Clausen J, Neuman T, Eisele JW, Vilke GM. Does weight force during physical restraint cause respiratory compromise? ACEP Annual Meeting, Boston, Massachusetts, October 2003.
82. Davis D, Grossman K, Vilke G, Kiggins D, Chan TC. Inadvertent anticoagulation of emergency department patients with aortic dissection. ACEP Annual Meeting, Boston, Massachusetts, October 2003.
83. Killeen JP, Chan TC, Guss, DA. Impact of bar coding technology and computerized physician order entry on reducing laboratory specimen misidentification errors in the emergency department. SAEM Annual Meeting, New York, New York, May 2005.



Curriculum Vitae  
Theodore C. Chan, M.D., FACEP

POSTER PRESENTATIONS, continued:

84. Bush J, Chan TC, Killeen JP, Vilke GM. The effect of changing from a latex agglutination D-Dimer to an ELISA D-Dimer on emergency physicians ordering imaging studies practices to evaluate for pulmonary embolism. SAEM Annual Meeting, New York, New York, May 2005.
85. Vilke GM, Michalewicz B, Kolkhorst FW, Neuman T, Chan TC. Does weight force during physical restraint cause respiratory compromise? SAEM Annual Meeting, New York, New York, May 2005.
86. Levine SD, Sloane C, Chan TC, Vilke GM, Dunford J. Cardiac monitoring of subjects exposed to the Taser. SAEM Annual Meeting, New York, New York, May 2005.
87. Michalewicz, B.A., T.C. Chan, G.M. Vilke, S.S. Levy, T.S. Neuman, and F.W. Kolkhorst. Ventilatory and metabolic demands during aggressive physical restraint in healthy adults. American College of Sports Medicine Annual Meeting, Denver, CO, June 2006. [*Medicine and Science in Sports and Exercise* 38(5 Supplement), 2006].
88. Chan TC, Buono C, Killeen J, Griswold W, Lenert L. Tablet computing for disaster scene managers. AMIA Annual Symposium, Washington, DC, November 2006.
89. Buono C, Huang R, Brown S, Chan TC, Killeen J, Lenert L. Role-tailored software systems for coordinating care at disaster sites: Enhancing collaboration between the base hospitals with the field. AMIA Annual Symposium, Washington, DC, November 2006.
90. Demchak B, Chan TC, Griswold WG, Lenert LA. Situational awareness during mass-casualty events: Command and control. AMIA Annual Symposium, Washington, DC, November 2006.
91. Chan T, Sloane C, Neuman T, Levine S, Castillo E, Vilke G, Bouton K, Kolkhorst F. The impact of the taser weapon on respiratory and ventilatory function in human subjects. SAEM Annual Meeting, Chicago, IL, May 2007.
92. Buono C, Lyon J, Huang R, Brown S, Liu F, Vilke G, Killeen J, Chan T, Kirsh D, Lenert L. Does wireless technology improve patient tracking in mass casualty incidents? SAEM Annual Meeting, Chicago, IL, May 2007.
93. Vilke G, Sloane C, Levine S, Neuman T, Castillo E, Chan T. Does the Taser Cause Electrical Changes in Twelve Lead ECG Monitoring of Human Subjects? SAEM Annual Meeting, Chicago, IL, May 2007.
94. Vilke G, Sloane C, Bouton K, Levine S, Neuman T, Castillo E, Kolkhorst F, Chan T. Cardiovascular and metabolic effects of the taser on human subjects. SAEM Annual Meeting, Chicago, IL, May 2007.



Curriculum Vitae  
Theodore C. Chan, M.D., FACEP

POSTER PRESENTATIONS, continued:

95. Sloane C, Vilke G, Chan T, Levine S, Dunford J. Serum troponin I measurement of subjects exposed to the taser x-26. SAEM Annual Meeting, Chicago, IL, May 2007.
96. Chan T, Buono C. Field provider geolocation position tracking at mass gathering events. AMIA Annual Meeting, Chicago, IL, November 2007.

Curriculum Vitae  
Theodore C. Chan, M.D., FACEP

ORAL PRESENTATIONS AT NATIONAL MEETINGS:

1. Chan TC, Buchanan J, Anderson M, Vilke GM: Patient ethnicity and age in prehospital emergency ambulance use and acuity rates. NAEMSP Mid-Year Meeting, Lake Tahoe, Nevada; July 1998.
2. Vilke GM, Dunford JV, Buchanan J, Chan TC: Are opiate overdose deaths related to patient release after naloxone? ACEP Research Forum, San Diego, California; October 1998.
3. Vilke GM, Chan TC, Ray LU, Anderson ME: Use of prehospital crash injury data to assess regional automobile safety restraint use. NAEMSP Annual Meeting, Marcos Island, Florida; January 1999.
4. Chew GS, Chan TC, Bramwell K, Davis DP, Vilke GM: Does gastric distention from air insufflation affect the accuracy of the syringe esophageal detector device in detecting esophageal intubation? SAEM Western Regional Research Forum, Redondo Beach, California; March 1999.
5. Marino AT, Sharieff G, Gerhart AE, Chan TC, Vilke GM: The efficacy and complication rate of prehospital midazolam for the treatment of pediatric seizures. NAEMSP Annual Meeting, Dana Point, California; January 2000.
8. Eisele JW, Chan T, Vilke G, Neuman T, Clausen J: Effect of weight placed on the back of subjects in the hobble restraint position. American Academy of Forensic Sciences Annual Meeting, Reno, Nevada; February 2000.
9. Chan TC, Vilke GM, Neuman TS, Clark RF, Clausen JL: The effect of oleoresin capicum spray inhalation on pulmonary and respiratory function. SAEM Western Regional Research Forum, Portland Oregon; April 2000.
10. Vilke GM, Chan TC, Seltzer A, Fisher R, Dunford JV: Outcome of out-of-hospital refusal of paramedic transport by parents of pediatric patients. State of California EMS Authority Annual EMS for Children Conference, San Diego, California; November 2000.
11. Deitch S, Vilke GM, Marino A, Vroman D, Chan TC: Effect of prehospital use of nitroglycerine on EKG findings in patients with chest pain. American Academy of Emergency Medicine (AAEM) Annual Conference, Orlando, Florida; March 2001.
12. Vilke GM, Steen PJ, Smith AM, Chan TC: Pediatric intubation by paramedics: The San Diego County experience. SAEM Western Regional Research Forum, Irvine, California; March 2001.
13. Chan TC, Dunford JV, Vilke GM: Impact of a community multidisciplinary homeless outreach team. SAEM Annual Meeting, Atlanta, Georgia; May 2001.

Curriculum Vitae  
Theodore C. Chan, M.D., FACEP

ORAL PRESENTATIONS AT NATIONAL MEETINGS, continued:

14. Chan TC, Dunford JV, Vilke GM: Impact of a community multidisciplinary homeless outreach team. CAL/ACEP Scientific Assembly, Santa Clara, California; June 2001. (Won Award for Best Oral Presentation)
15. Clark RF, Phillips M, Manoguerra AS, Chan TC: Home calls from predominantly Latino communities to a regional poison center. North American Congress of Clinical Toxicology, Montreal, Canada; October 2001.
16. Vilke GM, Lev R, Castillo EM, Metz MA, Murrin PA, Chan TC: Prospective countywide trial to decrease ambulance diversion hours. SAEM Western Regional Meeting, Scottsdale, Arizona; April 2003.
17. Killeen JP, Chan TC, Smith M, Hutches D, Hidley G, Lenert L: Prehospital Field Telemedicine Evaluation Utilizing 1xEV-DO Wireless Internet. American Telemedicine Association Annual Meeting, Orlando, Florida; April 2003.
18. Vilke GM, Lev R, Castillo EM, Metz MA, Murrin PA, Chan TC. The effect of decreasing ambulance diversion hours on emergency department interfacility transfers. ACEP Annual Meeting, Boston, Massachusetts, October 2003.
19. Killeen J, Chan TC. A wireless first responder handheld device for rapid triage, patient assessment and documentation during mass casualty incidents. AMIA Annual Symposium, Washington, DC, November 2006.
20. Lenert LA, Chan TC, et al: Wireless internet information system for medical response in disasters (WIISARD). AMIA Annual Symposium, Washington, DC, November 2006.

Curriculum Vitae  
Theodore C. Chan, M.D., FACEP

PRESENTATIONS/SPEAKING ENGAGEMENTS:

1. "Anorectal Disorders and Emergencies" -- Emergency Medicine Core Curriculum Conference, UCSD Medical Center; December 1993.
2. "Ear and Nose Emergencies" -- Emergency Medicine Core Curriculum Conference, UCSD Medical Center; January 1995.
3. "Marine Envenomations" -- Emergency Medicine Toxicology Conference, UCSD Medical Center; August 1995.
4. "Child Abuse in the Emergency Department" --
  - Emergency Medicine Core Curriculum Conference, UCSD Medical Center; September 1995.
  - Noon Conference, Department of Emergency Services, San Francisco General Hospital; January 1996.
5. "Thrombolytics in Noncardiac Emergencies" -- Grand Rounds, Department of Emergency Medicine, UCSD Medical Center; May 1996.
6. "Billing in the Emergency Department" -- Emergency Medicine Resident Orientation, UCSD Medical Center; July 1996.
7. "EMS Data Innovations - Prehospital AMA Patients" -- Shaping EMS for the 21st Century Conference, Emergency Medical Services Administrators Association of California, San Diego, California; May 1997.
8. "Non-accidental Trauma (NAT)" -- County-wide Field Care Audit, presented by Mercy Hospital and UCSD Medical Center, San Diego, California; May 1998.
9. "Trauma" -- UCSD National City School District Systemic Teacher Enhancement Project, National City, California; June 1998.
10. "Prehospital Research" -- Prehospital Audit Committee, County of San Diego; September 15, 1998.
11. "Emergency Medicine Research" -- Howard Hughes Student Lecture, UC San Diego, November 3, 1998.
12. "The Impact of Oleoresin Capsicum Spray on Respiratory Function in the Sitting and Hobble Restraint Positions" --
  - San Diego Regional Public Safety Training Institute; March 11, 1999.
  - San Diego SWAT Teams Unit; May 12, 1999.
13. "Studies in Restraint Physiology" -- Grand Rounds, Department of Emergency Medicine, UCSD Medical Center; July 13, 1999.

Curriculum Vitae  
Theodore C. Chan, M.D., FACEP

PRESENTATIONS/SPEAKING ENGAGEMENTS, continued:

14. Results of the National Institute of Justice Study on Oleoresin Capsicum Spray, sponsored by the U.S. Department of Justice -- San Diego Regional Public Safety Training Institute; September 30, 1999.
15. "Outpatient Treatment of Deep Venous Thrombosis" -- Clinical Practice Guidelines for the Primary Care Physician, sponsored by UCSD School of Medicine, San Diego, California; November 20, 1999.
16. "Restraint Position and Positional Asphyxia" -- Invited presentation to the Health and Human Services Subcommittee, Grand Jury, County of San Diego; November 1999.
17. "Management and Triage of Heart Failure Patients in the Emergency Department" -- Congestive Heart Failure Task Force Conference, UCSD Medical Center; January 26, 2000, February 9, 2000.
18. "Anatomy of a Lawsuit: The Dollars, Sense, and Strategies of Medical Malpractice Litigation" --
  - Housestaff Association, Alumni and Faculty, UCSD Medical Center; March 15, 2000.
  - Department of Medicine Noon Conference, UCSD Medical Center; March 16, 2000.
19. Findings of the National Institute of Justice Study on Oleoresin Capsicum Spray and Respiratory Function -- Nonlethal Defense IV Conference, National Defense Industrial Association, Tysons Corner, Virginia; March 22, 2000.
20. "Overview of Findings From Study on Positional Asphyxia and Pepper Spray" -- to the Liability Panel, Less-Than-Lethal Technology and Policy Assessment, National Institute of Justice, United States Department of Justice, Washington, DC; June 20, 2000.
21. "Positional Asphyxia Review" -- 2000 PPCT Use of Force Conference, St. Louis, Missouri; July 14, 2000.
22. Keynote Address: "Myocardial Reperfusion" -- Emergency Medicine in Jackson Hole Conference, Jackson Hole, Wyoming; August 14, 2000.
23. Difficult Airway Panel (Davis D, Wolfe R, Chan T, Bramwell K) -- Emergency Medicine in Jackson Hole Conference, Jackson Hole, Wyoming; August 15, 2000.
24. "Conscious Sedation" -- Emergency Medicine in Jackson Hole Conference, Jackson Hole, Wyoming; August 17, 2000.
25. Airway Workshop (Wolfe R, Chan T, Bramwell K, Davis D) -- Emergency Medicine in Jackson Hole Conference, Jackson Hole, Wyoming; August 17, 2000.
26. "Findings of the National Institute of Justice Oleoresin Capsicum Exposure and Restraint Study" -- San Diego Special Enforcement Detail (SWAT), County of San Diego, California; October 18, 2000.

Curriculum Vitae  
Theodore C. Chan, M.D., FACEP

PRESENTATIONS/SPEAKING ENGAGEMENTS, continued:

27. "OC Spray and Positional Asphyxia: Separating Fact from Fiction" -- International Association of Chiefs of Police 107th Annual Conference, San Diego, California; November 11, 2000.
28. "Positional Asphyxia and Oleoresin Capsicum: Results of the National Institute of Justice Study" -- Non-Lethal Chemical Agents for Trainers Conference, Carlsbad, California; November 15, 2000.
29. "Common ENT Emergencies Seen in the ED"; "Non-accidental Trauma"; "New Strategies for Acute Myocardial Perfusion"; "Procedural Analgesia and Sedation" -- Mammoth Mountain Emergency Medicine Conference, Mammoth Lakes, California; March 5-6, 2001.
30. "Emerging Infections: The Coming Plague" -- ACEP Emergency Medicine Connection, San Diego, California; March 20, 2001.
31. "Emergency Procedural Analgesia & Sedation" -- CAL/ACEP Scientific Assembly, Santa Clara, California; June 8, 2001.
32. "Clinical Aspects of Bioterrorism" -- San Diego County Health and Human Services; December 6, 2001.
33. "Awareness and Use of the California Regional Poison Center in Two Ethnically Diverse Communities in San Diego" -- San Diego Briefings of the UCSD Civic Collaborative, San Diego, California; March 19, 2002.
34. "Bio-Terrorism: Disaster Preparedness in San Diego" -- Emergency Department Second Annual Symposium, Sharp Grossmont Hospital, San Diego, California; April 17, 2002.
35. "Emergency Management of Rhythm Disorders" -- Arrhythmic & Ischemic Emergencies: New Treatment Approaches - Dinner Symposium, Los Angeles, California; June 13, 2002.
36. Roundtable on Cultural Diversity Competency and Training -- Council of Residency Directors, ACEP Scientific Assembly, Seattle, Washington, October 7, 2002.
37. "Chemical Agent Overview" -- San Diego County Health and Human Services; January 8, 2003.
38. "Positional Asphyxia and Sudden Custody Death -- Separating Fact from Fiction" -- American Society for Law Enforcement Training, Ontario, California; January 10, 2003.
39. "Reperfusion for AMI" -- Western States Winter Conference on Emergency Medicine, Park City, Utah; January 22, 2003.
40. "ENT Emergencies" -- Western States Winter Conference on Emergency Medicine, Park City, Utah; January 23, 2003.

Curriculum Vitae  
Theodore C. Chan, M.D., FACEP

PRESENTATIONS/SPEAKING ENGAGEMENTS, continued:

41. "Bioterrorism Update: Smallpox and Smallpox Vaccination" -- San Diego County Sheriff's Department, SWAT, and Special Enforcement Detail, San Diego, California; February 10, 2003.
42. "Academic Emergency Medicine and Research Opportunities" -- San Diego Health Information Association, San Diego, California; February 11, 2003.
43. "Bioterrorism Update: Smallpox and Smallpox Vaccination" -- San Diego County Sheriff's Department, ASTREA Division, San Diego, California; March 14, 2003.
44. "Positional Asphyxia" -- American Correctional Health Services Association Conference 2003, San Diego, California; September 25, 2003.
45. "Challenging ECG cases in the ED: Pearls and Pitfalls" -- Western States Winter Conference on Emergency Medicine, Park City, Utah; January 28, 2004.
46. "Positional Asphyxia" -- San Diego County Sheriff's Department -- Medical Division, San Diego, California; January 29, 2004.
47. "Improving Patient Flow and Reducing ED Crowding: Findings from 10 Hospitals" -- Urgent Matters, Web-based program, World Wide Web; July 1, 2004.
48. "After-the-Fire Grantee Summit" -- The San Diego Foundation, San Diego, California; October 21, 2004.
49. "Wireless Internet Information System for Medical Response to Disasters -- The WISARD Project" -- San Diego Metropolitan Medical Strike Team, San Diego, California; November 17, 2004.
50. "Urgent Matters Study (input, throughput, output) of UCSD Medical Center's Emergency Department" -- San Diego Community Emergency Departments, San Diego, California; December 2, 2004.
51. "Best Practices of other Urgent Matters Hospitals" -- San Diego Community Emergency Departments, San Diego, California; December 2, 2004.
52. "Emergency Room Problems in San Diego; How Can We Improve Quality?" -- The San Diego Patient Safety Consortium Patient Safety Form, San Diego, California; December 16, 2004.
53. "Emergency Response Management for Efficiency of Care and Fiscal Consideration" -- American Correctional Health Services Association, Oakland, California; April 2, 2005.
54. "Promise and Pitfalls: Emergency Department Information Systems" -- Urgent Matters Regional Conferences, Atlanta, Georgia; October 14, 2005.

Curriculum Vitae  
Theodore C. Chan, M.D., FACEP

PRESENTATIONS/SPEAKING ENGAGEMENTS, continued:

55. "Promise and Pitfalls: Emergency Department Information Systems" -- Urgent Matters Regional Conferences, Las Vegas, Nevada; October 28, 2005.
56. "Wireless Internet Information System for Medical Response to Disasters" -- Metropolitan Medical Response System Quarterly Meeting, San Diego, California; January 19, 2006.
57. "In-Custody Sudden Deaths" -- Florida Sheriffs Association One Day Symposium, Orlando, Florida; June 1, 2006.
58. "They Didn't Need to Shoot Him: Providing Effective Alternatives to Lethal Force" Plenary Panel -- The National Institute of Justice Conference, Washington D.C.; July 18, 2006.
59. "Use of Force: Sudden Death Myths and Excited Delirium" - The Commission of Accreditation for Law Enforcement Agencies (CALEA) Less Lethal Technology Working Group Meeting, Washington D.C.; September 10, 2006.
60. "Cardiac, Respiratory, and Metabolic Effects of EMD" - NIJ Steering Group Committee, US Department of Justice, Office of Justice Programs, Washington D.C.; October 30, 2006.
61. "IT Innovation in an Academic Emergency Department" - Institute for Healthcare Improvement Meeting, San Diego, California; November 2, 2006.
62. "Restraint Physiology: Separating Fact from Fiction" - Sudden Death, Excited Delirium and In-custody Death Conference, Las Vegas, Nevada; November 16, 2006.
63. "Use of Force and Sudden In-Custody Death" - Minnesota Dept of Public Safety -- Bureau of Criminal Apprehension, Minneapolis, Minnesota; April 30, 2007.
64. "Chlorine Gas Exposure and Chemical Terrorism" - San Diego County Metropolitan Medical Strike Team, San Diego, California; September 19, 2007.
65. "Power of Innovation: The Strategic Use of Technology to Improve the Patient Experience" -- CEO Rounds, UCSD Medical Center, San Diego, California; September 20, 2007.
66. "Tasers" -- San Diego County EMS/ED American Medical Response Field Care Audit, San Diego, California; September 26, 2007.
67. "ER Overcrowding;" Panelist -- ER Overcrowding Summit, San Diego, California; October 2, 2007.
68. "Restraints and Sudden Death" -- Sudden Death, Excited Delirium and In-Custody Death Conference, Las Vegas, Nevada; November 28, 2007.
69. "UCSD Emergency Medicine" -- DOM Clinical Service Chief's Meeting, San Diego, California; May 20, 2008.